Digital Services

Vision

Provide digital climate, water, and weather information in high quality, accessible, and reliable formats.

Concept of Operations

NWS Digital Services oversees the generation, storage, and exchange of information in computer readable formats. By employing digital technology, the NWS is revolutionizing the way data is produced, accessed, and analyzed.

The National Digital Forecast Database (NDFD) is the primary source for accessing a seamless national mosaic of NWS forecast information. The NDFD is provided via the Internet. From the digital data set, information can be used as is or reproduced into a wide range of text, graphical, digital, and image products.

Our commitment to service improvement is ongoing. Many existing experimental forecasts will transition to operational status in FY 2006. Meanwhile, new experimental forecast elements are planned to be added to NDFD. Details, including schedules and a description of the forecast elements, are available at: http://weather.gov/ndfd.

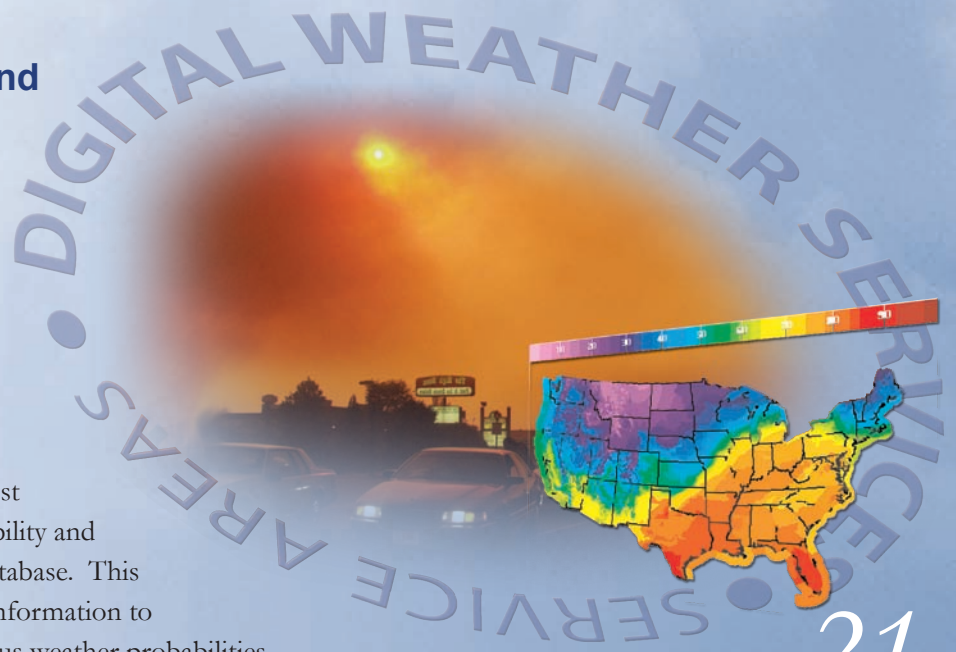
Customer and Partner Requirements

User needs for new products and services have been assessed at the national, regional, and local level. The following requirements have been identified:

- ✓ Deliver information in a variety of standardized formats
- ✓ Add more forecast elements to the NDFD
- ✓ Generate higher temporal and spatial resolution of forecast weather information
- ✓ Provide easier access to the real-time and archived NDFD data
- ✓ Explore new dissemination pathways for digital data
- ✓ Develop grids which incorporate forecast uncertainty
- ✓ Add the Vertical 4th dimension.

Link to Science and Technology Infusion Plan

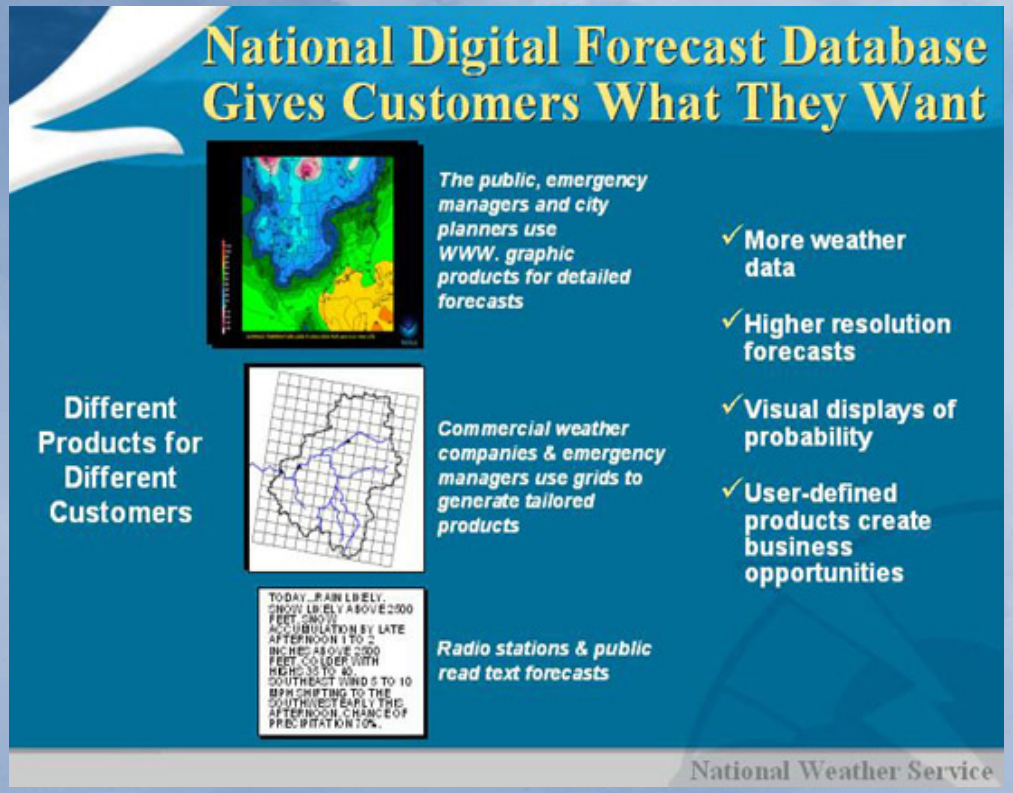
Researchers and developers are applying new scientific methods to create verification systems that assess the accuracy of digital information. Work is also progressing to suggest new ways to include probability and uncertainty in the digital database. This will help to convey useful information to customers, such as hazardous weather probabilities.



Product and Service Changes

The following experimental forecast elements are expected to transition to operational status in FY 2006:

- ✓ Wind Direction and Speed
- ✓ Significant Wave Height
- ✓ Quantitative Precipitation Forecast (QPF)
- ✓ Snow Amount
- ✓ Relative Humidity
- ✓ Apparent Temperature
- ✓ Sky Cover



New experimental forecast elements are expected to include:

- ✓ Maximum QPF
- ✓ Transport wind and mising height for fire weather support
- ✓ Hazardous weather warnings and watches
- ✓ Tropical Cyclone Surface Wind Speed Probabilities
- ✓ Forecast elements for Alaska

The status of current NDFD elements is available at: http://weather.gov/ndfd/resources/oper_status_table.pdf.

Every three months (January, April, July, October), NWS issues a message giving 60 days advance notice of what improvements are planned for the NDFD. The message is called a Technical Implementation Notice (WMO heading: NOUS41 KWBC; AWIPS ID: PNSWSH). Thirty days before any implementation, the NWS transmits another Technical Implementation Notice containing more specific information. To receive all Technical Implementation Notices via e-mail, write to the NWS' Office of Climate, Water, and Weather Services' Notification Coordinator at: nws.hq.ocwws.notify@noaa.gov. This information is also available on the NDFD Development web page at: http://weather.gov/ndfd/development.htm.

Science and Technology Requirements

A short term goal is to develop and share gridded (versus point-based) verification of digital forecast elements with all internal and external stakeholders. Another goal is to enhance our capability of providing NDFD data for use in Geographic Information Systems (GIS).

Milestones by Quarter

1st Quarter

- Transition Wind Speed and Wind Direction elements to operational status

2nd Quarter

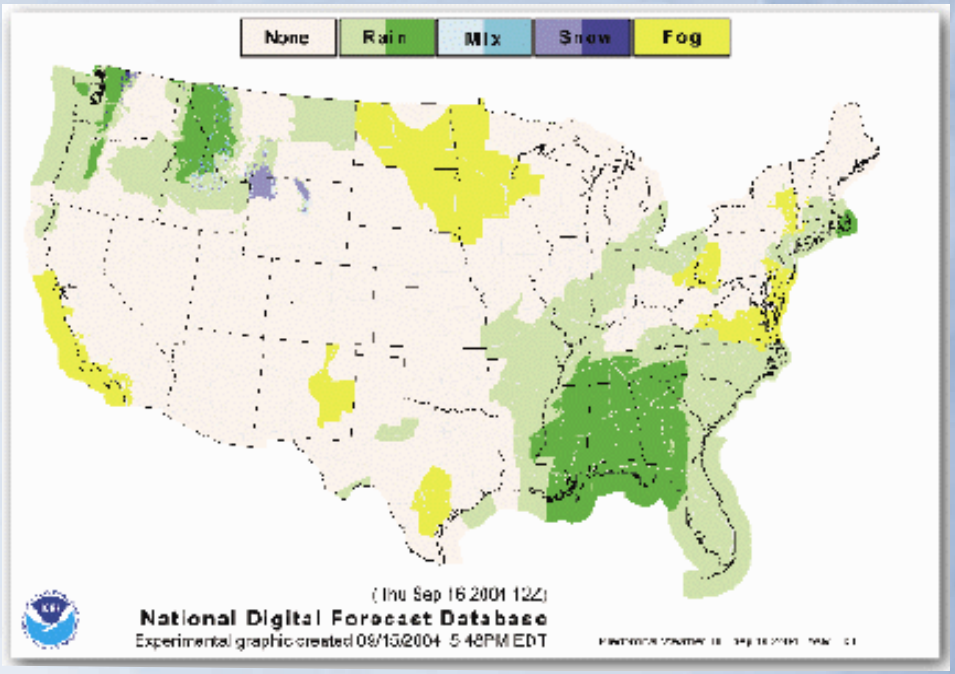
- Transition Relative Humidity and Apparent Temperature forecast elements to operational status
- Include instructions to use NDFD data in Geospatial Information Systems (GIS) on the NDFD webpage

3rd Quarter

- Introduce Tropical Cyclone Surface Wind Speed Probabilities as an experimental element in NDFD

4th Quarter

- Transition Significant Wave Height and Sky Cover forecast elements to operational status
- Release Storm Prediction Center National Convective Outlooks for Days 1 and 2
- Provide NDFD grids in 1-hour resolution
- Introduce Six Alaska forecast parameters the following as experimental element in NDFD
- Transition to operational status the NWS' eXtensible Markup Language (XML) web service
- Routinely generate six Real Time Mesoscale Analysis (RTMA) fields as part of National Centers for Environmental Prediction operations and distribute to test sites



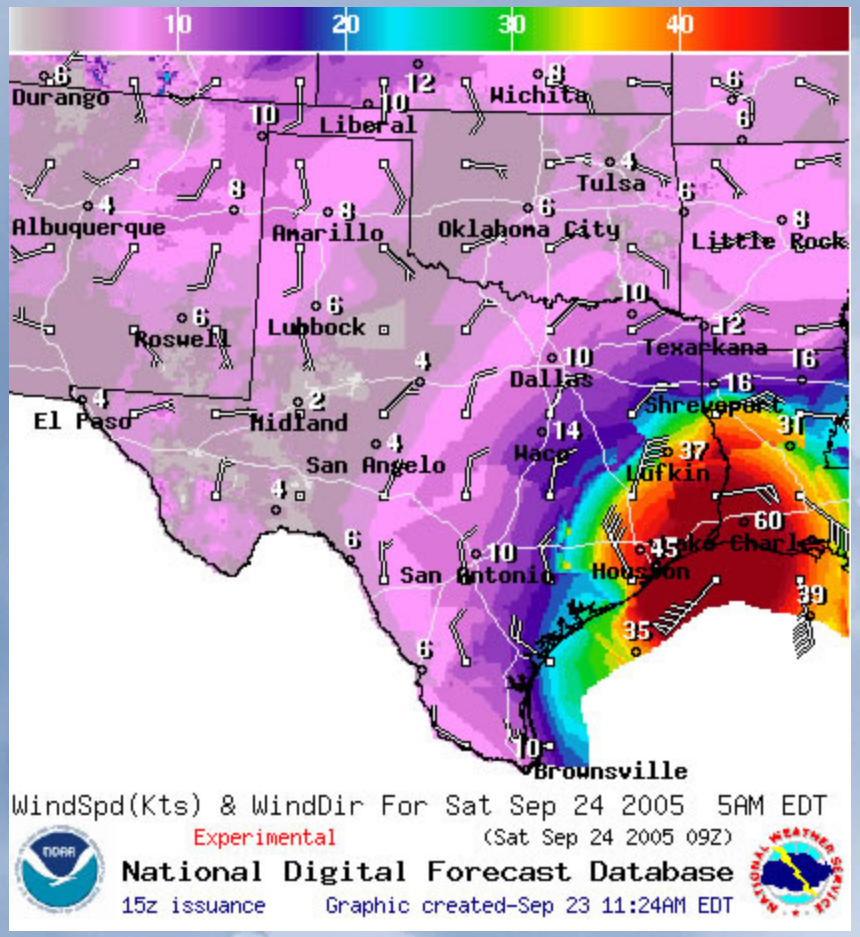
NDFD Weather Forecast Map showing national weather conditions during the landfall of Hurricane Ivan.

FY 2007 Outlook

- ✓ Introduce additional experimental forecast elements and transition experimental forecast elements to operational status.
- ✓ Routinely generate six RTMA fields and distribute to the NWS CONUS field offices with the implementation of AWIPS upgrade.

Integrated Requirements

New tools are needed by forecasters to ingest guidance grids to initialize their forecasts. System enhancements are needed to support the database expansion (e.g., aviation and hydrologic forecasts.)



NDFD Southern Plains Wind Speed and Wind Direction Forecast Map during the landfall of Hurricane Rita.

Higher bandwidth is needed in satellite and ground-based dissemination systems to ensure high-resolution digital products are readily available to partners and customers.

Outreach

New information concerning the Digital Services program will be shared through the following outlets:

- ✓ The NDFD webpage maintains updated information and data access. http://weather.gov/ndfd
- ✓ Technical Implementation Notices are provided prior to the date when changes are made to the NDFD. (Refer to the Product and Service Changes Section for more details.)
- ✓ Articles concerning Digital Services appear periodically in the online newsletter AWARE. http://weather.gov/os/Aware
- ✓ Progress and plans regarding Digital Services are shared at NWS partners workshops, professional society meetings, and various other conferences held annually across the county.

Verification

A prototype NDFD verification system is available to the public at http://weather.gov/ndfd/verification/. It is a point-based system that verifies grid points near surface observation sites. The development of a gridded verification system is underway.

Regional Initiatives

Great Lakes Project

The NWS has begun to explore international collaboration for Digital Services over the Great Lakes with the Meteorological Service of Canada. A demonstration of collaboration for gridded marine forecasts will be conducted at the Toronto and Buffalo forecast offices.

Contact Information

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